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## Accelerator Design of High Luminosity Electron-Hadron Collider eRHIC

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The accelerator design of future high-energy high-luminosity electron-hadron collider at RHIC called eRHIC is presented. We plan adding energy recovery linacs to accelerate the electron beam to 20 (potentially 30) GeV and to collide the electrons with hadrons in RHIC. The center-of-mass energy of eRHIC will range from 30 to 200 GeV. The luminosity exceeding  $10^{34} \text{ cm}^{-2} \text{ s}^{-1}$  can be achieved in eRHIC using the low-beta interaction region with a 10 mrad crab crossing. The important eRHIC R&D items include the high-current polarized electron source, the coherent electron cooling and the compact magnets for re-circulating passes. A natural staging scenario is based on step-by-step increases of the electron beam energy by building-up of eRHIC's SRF linacs.

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